

Job 342
5 May, 1971

STEREOCOMPARATOR
FINAL SITE INSTALLATION
STATUS AND REVIEW OF THE WORK EFFORT TO DATE

The installation was planned to be started by laying the cables in the underfloor cable trays and making the necessary electrical continuity and short tests.

Once the cables were in position, the removable floor would be replaced and the installation of the main Stereocomparator could begin with the installation of the vibration absorbing mounts and the main frame. The granite base blocks would then be put in place.

The center section of the optical bridge would be installed, and the granite base blocks aligned to the optical axes.

Next, the illumination systems and the zoom condensers would be installed on the granite base blocks and aligned to the optical axes.

The next step would be to install the stages on the base blocks and perform their orthogonality alignment.

Simultaneously, the electronic cabinets would be set in place and their cables connected.

The vibration dampers would next be installed and adjusted, and the lasers and interferometers mounted.

The interferometers would be aligned, and the left and right optical bridges installed.

The optical bridges would be aligned to the optical axes, the cables connected to the main Stereocomparator unit, the control console, teletype, and card punch placed in position and connected.

The electromechanical system checkout would begin and upon completion be followed by the alignment of the optical system.

The foregoing outline of the installation procedure represents about three months of work and requires that the various procedures be carried out in a fixed order.

The first month of the installation work did not follow planned procedures, because, among other things, the mounting brackets for the vibration dampers were not installed. The original schedule required the brackets to be installed prior to the beginning of the Stereocomparator assembly on site. The mounting brackets were delivered to the installation site on or about November 3, 1970 and were to be attached to the main concrete foundation in a permanent and rigid manner by the sponsor's site preparation contractor.

STAT On March 5, 1971 a meeting was held at the site between the sponsor, the engineering representatives of [] and the site preparation contractor in order to expedite the installation of the brackets.

As of May 5, 1971, the brackets have not yet been installed, although preparatory work for the final installation has been performed.

STAT The cables arrived on site on April 7, 1971. Installation work was begun at once by the [] field electronic technicians who had arrived at the installation April 5, 1971.

STAT
STAT The [] field engineering supervisor arrived at the site on April 12, 1971, and the first [] field mechanical technician arrived on April 8, 1971.

The Stereocomparator assembly less optics arrived on site in two shipments, April 8, 1971 and April 9, 1971 respectively.

The optics arrived by air shipment on April 22, 1971 and an additional truck shipment of miscellaneous material was delivered on April 20, 1971.

All the material was subject to visual inspection upon arrival, and the accelerometers that were packed with the critical items were checked for impact shocks.

A report has been prepared covering the impact shock aspect of the shipment. The maximum shock read by the accelerometers was 5.8g. Luckily, the crate in question contained the zoom condensers which are one of the less critical elements of the optical system. No visible damage to the condensers has occurred.

The installation of the electronic cables, the electronic racks, the vibration absorbers, the steel frame, the granite base blocks, the stages, the center section of the optical bridge, the zoom condensers and the illumination systems has been completed up to the point of final alignment.

The vibration damper installation has not been made as their mounting brackets have not been finally grouted in place.

Because of this situation, the Stereocomparator installation has been halted with the [] Field installation group on a standby basis pending completion of the work by the sponsor's site preparation contractor. It is hoped that the slippage situation will be corrected momentarily, and that the [] work can recommence with the lost schedule time not exceeding two weeks.

Every effort has been made by [] to employ their staff gainfully, but a substantial slippage has unavoidably occurred.

Shock Values Recorded on the Accelerometers during the Shipment
of the Stereocomparator Assembly between [] and Washington, D.C. **STAT**

The shipment was made in several loads, as follows:

1. **Cables:** Pacific Intermountain Express truck.
Left March 23, 1971 - Arrived on or about April 7, 1971.
Approximate weight of shipment: 4,000 lbs.
No accelerometers in the crates.

2. **Main Assembly:** Shipped in two North American Van Lines
Air Ride trucks.
The first load left April 1, 1971 - Arrived April 8, 1971.
Weight of Shipment: 19,740 lbs.

The accelerometer was bolted to the floor inside the van
body at a point considered typical from the point of view
of shock. This was slightly forward of the rear wheels.

The maximum impact shock recorded was 2.3g (see
attached accelerometer data).

The second load left on April 2, 1971 and arrived April 9, 1971.
Weight of Shipment: 26,500 lbs.
The accelerometer was located in approximately the same
position in the truck as for the first load.
The maximum impact shock recorded was 2.7g.

3. **Optical System:** TWA Air Freight. Nonstop, San Francisco to
Baltimore, Maryland. Truck between [] and **STAT**
San Francisco, and between Baltimore and Washington.

Weight of Shipment: 6,487 lbs.

The speed of the trucks was limited to 40 miles per hour
on smooth surfaced roadways and careful driving was
performed to prevent sudden stops. The crates used for
this shipment were the same ones in which the optical
system had arrived originally from [] where **STAT**
the parts were fabricated.

These special crates were internally protected with
plastic air filled pillows on all six sides. The type of
packing represented a "crate within a crate" form of
construction.

The shipment left April 21, 1971 and arrived April 22, 1971.

The shipment was accompanied by an ☐ courier to insure careful handling and safe arrival.

STAT

An accelerometer was installed inside each of the six crates containing the critical optical subassemblies.

The maximum impact recorded was 5.8g. The impact was primarily in the vertical direction and was probably due to mishandling between vehicles. The crate in question contained the two zoom condensers which are the least susceptible to shock damage. No visible damage was noted at the time of unpacking. Internal damage can only be ascertained later, during the optical checkout.

4. Miscellaneous Non-critical Material and Computer Software:
Shipped by North American Van Lines.
Left April 13, 1971 and arrived April 20, 1971.
Weight of shipment: Approximately 600 lbs.

No accelerometers were provided for this shipment.

The conclusion that can be drawn from the general condition of the crates and the accelerometer data is that the shipment was satisfactory except for the zoom condenser crate. This subassembly is probably not damaged.

ACCELEROMETER READINGS FOR THE STEREOCOMPARATOR SHIPMENT

STAT

BETWEEN AND THE FINAL SITE IN WASHINGTON

I Main Equipment Shipment (No Optics) by Airride Van.

	Direction*	Calibration	Total Impact
Truck No. 1	Vertical	1.6g	2.3g
	Longitudinal	1.3g	
	Transverse	0.9g	
Truck No. 2	Vertical	1.6g	2.7g
	Longitudinal	1.6g	
	Transverse	1.3g	

II Optics Shipment by Air.

Right Illumination System

Vertical	0.3g	1.0g
Longitudinal	0.9g	
Transverse	0.3g	

Left Illumination System

Vertical	2.3g	2.4g
Longitudinal	0.38g	
Transverse	1.2g	

Right Optical Bridge

Vertical	1.8g	1.9g
Longitudinal	0.4g	
Transverse	0.2g	

Left Optical Bridge

Vertical	0.15g	1.5g
Longitudinal	1.47g	
Transverse	0.40g	

*The Direction is in relation to the motion of the truck or aircraft.

Direction	Calibration	Total Impact
Optical Bridge Center Section		
Vertical	0.8g	
Longitudinal	0.3g	
Transverse	1.0g	1.5g
Condensers (both units together)		
Vertical	5.4g	
Longitudinal	1.4g	
Transverse	1.2g	5.8g